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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/603,274

06/25/2003

Paul O'Connor

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01/06/2005

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EXAMINER

JOHNSON, CHRISTINA ANN

ART UNIT

PAPER NUMBER

1725

DATE MAILED: 01/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,274

Applicant(s)

O'CONNOR ET AL.

Examiner

Christina Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 1-14 in the reply filed on October 19, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claim 15 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on October 19, 2004.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 278 535.

EP 0 278 535 discloses a catalyst composition useful in hydrocarbon conversion processes. The catalyst composition comprises a catalytically active material, a sulfur oxide binding material and a matrix material (page 2, lines 1-5). Suitable sulfur oxide materials include anionic clays (page 3, lines 25-55 and page 4, lines 20-27) which may

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be loaded with promoters, including the rare earth metals lanthanum and cerium or copper or chromium (page 4, lines 25-48). Suitable catalytically active materials include zeolites (page 4, lines 49-57). Suitable matrix materials include silica, silica-alumina, and alumina and may further include a clay such as kaolin (page 5, lines 5-11). It is taught that the catalyst composition contains anionic clay in an amount in the range of 0.1-50%, preferably 1-30%, and more preferably 3-15%, by weight, and contains zeolite in amounts in the range of 5-50%, preferably 10-30%, by weight, with the balance being the matrix material (page 5, lines 45-53). In an example, the reference details the preparation of a catalyst composition containing 10% by weight of a cerium loaded anionic clay, 20% by weight of a USY zeolite, and 70% by weight of a matrix consisting of 85% by weight of kaolin clay and 15% by weight of alumina (page 13, Example 7).

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by EP 0 278 535.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/12570 in view of EP 0 278 535.

WO 01/12570 discloses anionic clay containing compositions and a method for preparing anionic clay. The anionic clay contains magnesium and aluminum and is formed by preparing a precursor mixture, shaping the precursor mixture to obtain shaped bodies, optionally thermally treating the shaped bodies and aging to obtain crystalline anionic clay bodies (page 2, lines 24-30). Suitable magnesium sources include magnesium oxide, magnesium hydroxide, magnesium carbonate, magnesium bicarbonate, magnesium acetate, and magnesium hydroxy acetate (page 6, lines 4-10). Suitable aluminum sources include water insoluble sources (page 3, lines 23-30). It is taught that the anionic clay may include additives, such as Ce, La, Group VI metals, Group VII metals, and/or transition metals (page 9, lines 24-30). These additives may be added in any of the preparation steps, and it is taught that the additives can be added before, after, or during any aging step (page 9, lines 10-30 and page 10, lines 1-5). It is taught that the anionic clay compositions may be used in combination with conventional catalyst components such as matrix materials (i.e. kaolin, alumina, silica-alumina, etc.) and molecular sieve materials (page 10, lines 20-25 and the Examples).

The difference between the reference and the claims is that the reference does not disclose the relative amounts of the metal doped anionic clay, zeolite, kaolin, alumina, and optionally silica, present in the composition.

EP 0 278 535 discloses a catalyst composition useful in hydrocarbon conversion processes. The catalyst composition comprises a catalytically active material, a sulfur oxide binding material and a matrix material (page 2, lines 1-5). Suitable sulfur oxide materials include anionic clays (page 3, lines 25-55 and page 4, lines 20-27) which may

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be loaded with promoters, including the rare earth metals lanthanum and cerium or copper or chromium (page 4, lines 25-48). Suitable catalytically active materials include zeolites (page 4, lines 49-57). Suitable matrix materials include silica, silica-alumina, and alumina and may further include a clay such as kaolin (page 5, lines 5-11). It is taught that the catalyst composition contains anionic clay in an amount in the range of 0.1-50%, preferably 1-30%, and more preferably 3-15%, by weight, and contains zeolite in amounts in the range of 5-50%, preferably 10-30%, by weight, with the balance being the matrix material (page 5, lines 45-53). In an example, the reference details the preparation of a catalyst composition containing 10% by weight of a cerium loaded anionic clay, 20% by weight of a USY zeolite, and 70% by weight of a matrix consisting of 85% by weight of kaolin clay and 15% by weight of alumina (page 13, Example 7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method and composition taught by the WO reference, in light of the teachings of the EP reference. The WO reference teaches an anionic clay and further suggests that the anionic clay may be combined with additional materials, particularly in compositions for the removal of sulfur oxides in FCC processes. The EP reference suggests that amounts of materials meeting the instantly claimed amounts are suitable for use in compositions for the removal of sulfur oxides in FCC processes. Because of this teaching, one of ordinary skill would have been motivated to use the amounts of materials taught by the EP reference in the composition taught by the WO reference, with a reasonable expectation of success from the combination.

Allowable Subject Matter

7. Claims 10-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments filed October 19, 2004 have been fully considered but they are not persuasive.

With respect to the 102 rejection over EP 0 278 535, applicant argues that the composition is prepared by impregnation in the examples. However, the reference also teaches that the anionic clay may be co-precipitated with a promoter metal, which is considered to meet the metal-doped anionic clay instantly claimed. Refer to page 4, lines 28-31 of the EP reference. Applicant further argues that impregnation is not equivalent to rehydration. However, this argument is not relevant to claims 1-4 as no rehydration is claimed or required. Finally, applicant argues that the reference does not disclose the product by process limitations. However, the instant claims are directed towards a product – the process limitations would not limit the product claimed, unless applicant demonstrates that the claimed process limitation results in a structural difference in the product.

With respect to the 103 rejection over WO 01/12570 in view of EP '535, applicant argues that there is no motivation to combine the references. However, the two references are concerned with the removal of sulfur from hydrocarbon streams utilizing

similar catalyst compositions. It is the position of the examiner that given the general teachings of the WO reference, one of ordinary skill would be motivated to determine the optimal amounts and composition of the catalyst taught. However, the EP reference provides guidance as to the amounts of components used in a similar composition useful in the same or similar process. Therefore, it is the position of the examiner that sufficient motivation exists to combine the two references. Applicant has not rebut the prima facie case of obviousness set forth by the examiner such as by demonstrating the criticality of the claimed composition.

With respect to the rejection over Stamires et al. in view of EP '535, applicant's statement of common assignment at the time of invention is sufficient to overcome the rejection of claims 1-4 and 10-14.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Johnson whose telephone number is (571) 272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Christina Johnson
Patent Examiner
Art Unit 1725

1/1/05

CAJ
January 1, 2005